Prinzing Pfeiffer GmbH, 89143 Blaubeuren, Germany

Ginter focuses on resource-saving production of manhole base elements

In 2020, the Polish precast concrete manufacturer Ginter, located in Chojnice, completed its portfolio in the infrastructure sector by including manhole base elements. Most competitors in Eastern Europe have so far relied exclusively on a wet cast production using polystyrene (EPS) inverts. Ginter opted for a dry cast variant instead. The combination of an Atlas and a Primuss from Topwerk Prinzing Pfeiffer uses concrete only; other materials for production such as polystyrene are not needed. Using this method, Ginter meets the EU standards for monolithic manhole base elements applicable in Poland.

Ginter has been operating on the market since 1988 and is one of the leading suppliers of infrastructure products in Poland. Its portfolio ranges from water supply pipes and cable distribution manholes for telecommunications, to road and sewer construction and decorative elements for urban development. The company attaches great importance to high production standards and relies on daily checks by its own internal laboratory. The only thing missing from the Polish company's diverse range of services was the efficient production of manhole base elements. Until 2020, these were ordered externally for large orders. The company has already been working for many years with several machines and equipment from the German manufacturer Prinzing Pfeiffer and decided last year to invest in two more machines from the supplier: an Atlas and a Primuss. This expansion completes the product range, so Ginter can now carry out all orders exclusively with its own products.

The efficient and cost-effective manufacturing process

Ginter has been planning for several years to expand the plant with new machinery in order to offer its customers all required precast concrete elements from one source. The situation in Poland has changed since the introduction of the EU standard for infrastructure projects in Poland, according to which the manhole base elements must be monolithic. Accordingly, the production of floor slabs and a subsequent installation of the manhole ring no longer complies with this standard. At that time, only the wet cast manhole bases, made with the aid of polystyrene inverts were installed on-site. As this process leads to both ongoing costs for the purchase of polystyrene blanks as well as a possible increased waste production, Ginter was looking for a suitable alternative that offered efficiency, sustainability and productivity.
After a thorough decision-making process, in which the company talked to machine manufacturers as well as other producers in the industry, Ginter invested in a combination of Atlas and Primuss. The deciding factors were the many years of experience already gained with Prinzing Pfeiffer machinery, as well as the cost-effective and efficient production of individual products without follow-up costs. The delivery of

The headquarters of Ginter in Chojnice

The Atlas – flexible manufacturing plant for the production of manhole products

The fresh manhole base element (green base unit) after demoulding

The green base unit is further processed after only 2 hours of curing

the two machines in the autumn/winter of 2020 included the appropriate software for technical sales to enter specifications of customer orders and transfer the data records to production.

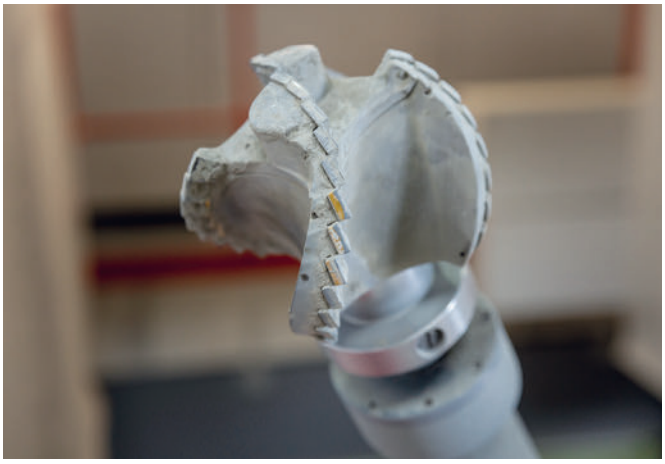
Production of monolithic manhole base elements with the Atlas

The manufacturing process for manhole base elements (dry cast process) starts with the production of the green base unit by the Atlas. As soon as the green base unit is ready, it is taken to the curing station so that the production of the next one can begin. In correspondence a high productivity is reached. Feeding and concrete dosing are fully automatic, as well as the vertical movement of the mould core. The latter is lowered during filling to create a monolithic connection between the manhole wall and the manhole base. This movement provides the Atlas with an integrated capability to create a continuous connection. The vibrating table control system can adjust both frequency and amplitude to optimally match the consolidation of the product. Consequently, the Atlas achieves exceptional energy efficiency.

With the dry cast process, several products can be produced per day with only one mould. So if the manufacturer is faced with increased demand, it does not have to invest in more moulds, but only temporarily increase the production time. At Ginter, the product reaches the basic stability required for further processing after only 2 hours. This short waiting time between the Atlas and Primuss stations results in a fast process and high productivity. Currently, Ginter produces approximately 16 products in a 7.5-hour shift.

Processing station of the Primuss

Control panel of the Primuss



Concrete milling within millimetre accuracy with 2 different milling heads: for inlets and outlets on the left and for the channel on the right

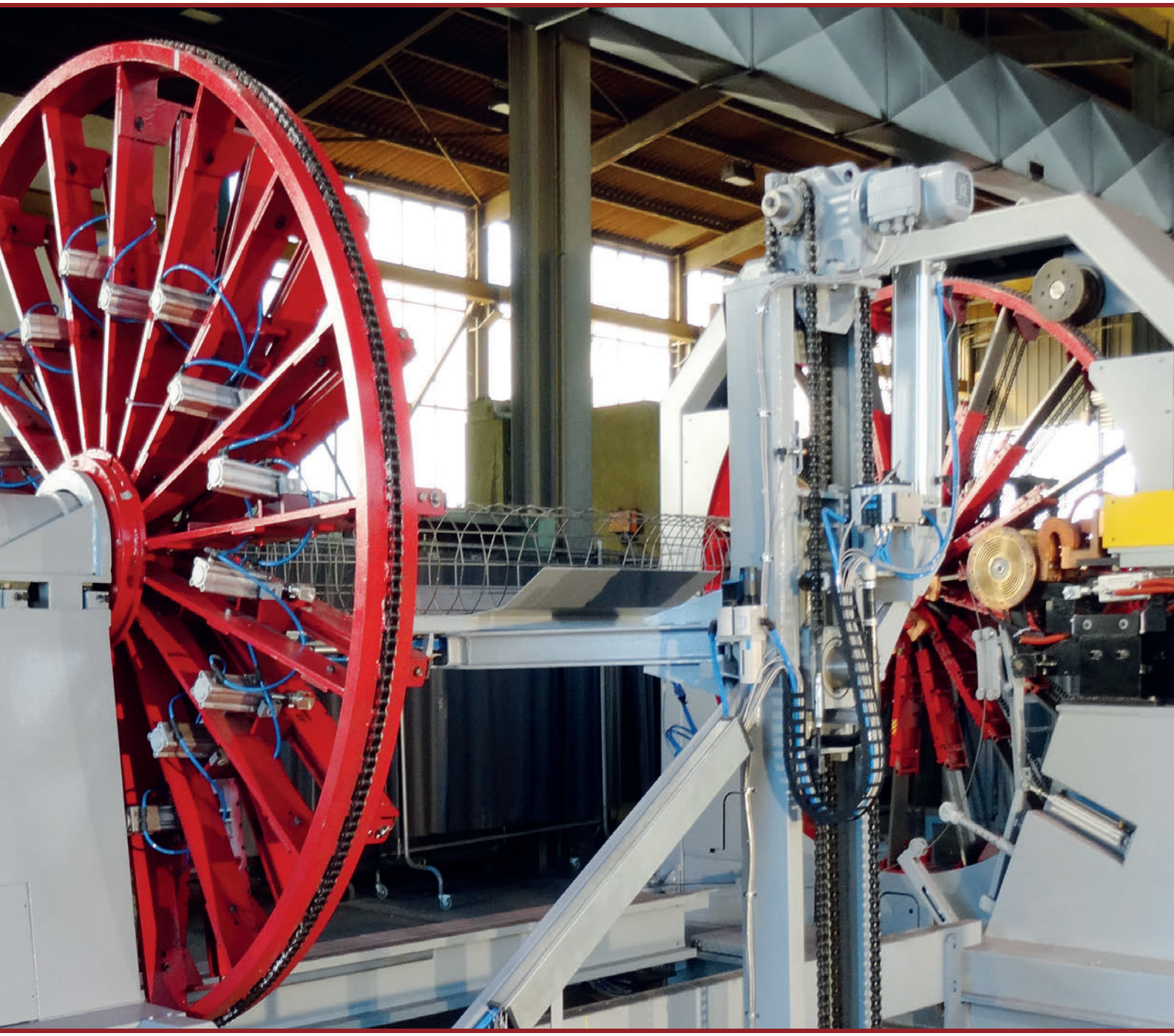
Fully automatic milling on the Primuss

After curing, the green base unit is placed on one of the processing stations of the Primuss. This is where the customised milling of the flow channel as well as the milling of the inlets and outlets is carried out. The Primuss operates fully automatically and receives its information from the technical sales department, where the computer that processes orders from customers is located. Size, diameter, number and position of the channel, inlets and outlets as well as the depth of the flow channel are entered into a special software. The resulting "product recipe" is stored as a data record and transferred from there to the Primuss control system. The machine operator selects the respective program and only has to initiate the milling process by pressing a button. The machine then operates fully automatically: the robot moves into the manhole base element from below and precisely mills the required recess of the flow channel.

The residual material after milling is conveyed up and can be used again in production

The finished end products

The SMS series: from semi to fully automatic …



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View over the outdoor storage area

The machining process on the Primuss takes between 20 and 40 minutes, depending on the dimensions of the respective product. The machine does not need to be operated during this time.

Environmentally friendly and sustainable

It was not only the efficiency that convinced Ginter. "The manufacturing process of the Altas-Primuss combination is sustainable, and as only concrete is used, the reduced use of materials results in an improved environmental performance. Moreover, no concrete is wasted: the material that is milled out normally consists of 1 to 1.5 mm grains, which can then be reused in the production," explains Alexander Probst, Regional Sales Director at Prinzing Pfeiffer GmbH.

During production, the energy and raw material acquisition costs remain almost constant and are always in relation to the general price fluctuations for energy and the raw materials that are used in concrete. There are no procurement costs for polystyrene and no costs for disposal in case no other use is available. This can be a significant cost factor, as the prices for polystyrene in Poland have also risen very sharply in the recent past.

Furthermore, with the Atlas-Primuss combination, Ginter remains independent of polystyrene suppliers and is prepared for known and still unknown products due to the manufacturing process of fully automatic milling. Customer orders can be carried out immediately.

Strong market position

With the Atlas-Primuss combination from Prinzing Pfeiffer, Ginter has invested in a resource-saving and thus environmentally friendly manufacturing process. Ginter has advanced in the production of manhole base elements in just a few months: The concrete quality is optimally adapted to the industrial production of manhole base elements, which is why the Polish producer delivers first-class end products. Thanks to the completed portfolio the company has positioned itself even better in the market and plans to expand the business with with new equipment in the near future. ■

FURTHER INFORMATION

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